COTTON CHATS

FROM

DRAPER COMPANY

SHIPMAN'S
COMMON-SENSE BINDER

PATENTED

JANUARY 19, 1892. APRIL 19, 1904

To open binder, remove the slides from fasteners raise the fasteners to an erect position and then file papers. For punching: lay the papers on covers and mark sheets to correspond with fasteners.

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ASA L. SHIPMAN'S SONS
MANUFACTURERS,
NEW YORK.

COTTON CHATS

By the secretary of the
DRAPER COMPANY,
HOPEDALE, MASS.

No. 24. FEBRUARY, 1904.

In our last issue, I went into considerable detail regarding a comparison of various weaving looms, starting with the original hand loom and ending with the Northrop. I did not, however, have sufficient space in which to detail the conclusions which the facts referred to would allow.

Arranging a table of comparison, if we take 24 Northrop looms at 190 picks per minute, we have a total of 4560 picks. On the same basis, without allowance for stops, eight common looms would show 1520 picks, or four English common looms at 220 picks, 880 picks per weaver. The perfected hand loom would show perhaps 30 to 60. The power loom of 1850, at 150 picks, with four to the operative would show 600 picks per minute, while the loom of about 1840, before the weft fork, would show with two looms per weaver at perhaps 130 picks per minute, 260 picks. Before the temple, the loom at 100 picks with one loom per weaver, would give 100 picks, while the hand loom before Kay at 20 picks, the loom of the middle ages with a possible 10 picks, and the loom of ancient history with a possible one pick per minute, brings our table down to a concrete illustration, which, even if faulty in detail, allows a comprehensive idea of the wonderful advantages since the earliest application of the art. The Northrop loom in eight years has added over 3,000 picks per minute per operative; the development since 1850, 920 picks; the inventions from 1830 to 1850, 370 picks; the inventions from 1820 to 1830, 130 picks; the inventions from Kay to 1820 would add 80 picks, the progress previous to this time being represented by 20 picks. It will thus be seen that within two centuries the productive power of the operative has been increased 228 times, and it is also seen that **the advantages of the Northrop loom show twice as much in product as all of the other inventions put together.**

History is practically silent as to the inventors who supplied the earlier devices employed on the hand loom. It is not, therefore, known who suggested the idea of the harness motion with its shifting heddles, the swinging lay with its reed, the take-up roll, the early jaw temple, and the shuttle itself. Starting with Kay, the development before the Northrop loom is shown by the following table, material for which is collected from standard works on weaving. No attempt is made to include the various inventors of fancy loom devices, including the jacquard motion, the dobby motion, and other ingenious developments. It might be well, however, to note that the earliest mechanism for fancy weaving; namely, the drop box, was invented by Robert Kay, son of John, in 1760. In preparing the table, it has also been thought well to limit the inventions to show only the anticipation of the general principles employed. It is impossible to properly note any but the pioneer inventors, and the dates given are usually those of their patents. Very possibly more credit is due other inventors not mentioned, for their perfection of ideas that otherwise would not have been useful.

1733. Fly shuttle. John Kay.

1786. Power loom. Edmund Cartwright.

(First suggestion of warp-stop-motion, weft-stop-motion, positive let-off and take-up.)

1796. Over-pick, binder, protector, and frog. Richard Gorton.

1796. Ratchet take-up. Robert Miller.

1803. Shedding motion. John Todd.

1816. Revolving emple. Ira Draper.

1821. Multiple harness motion. Robert Bowman.

1828. Complete power loom with modern over-pick. William Dickinson.

1830. Complete power loom. Richard Roberts.

(These two instances of complete power looms are mentioned as showing a general development of ideas not noted in detail, which together produced practical weaving machines.)

1831. Weft fork. Claimed by Clinton G. Gilroy.

1834. First shuttle-changer. John Patterson Reid and Thomas Johnson.

1834. Weft fork. Claimed by Ramsbottom and Holt.

1838. Picker check. Robert Pickles.

1840. Improved temple. George Draper.

1841. Weft fork improvements. William Kenworthy and James Bullough.

1842. Loose reed. James Bullough.

1845. Loom brake. John Sellers.

1846. Parallel shuttle-motion for under-pick loom. Warren W. Dutcher.

1851. Reciprocating temple. Elihu and Warren W. Dutcher.

1857. Automatic let-off. Snell and Bartlett.

1859. Rocker motion. W. Stearns.

1863. Loose frog. George Draper.

1867. Double beam let-off. Cottrell and Draper (George).

1868. Practical self-threading shuttle. J. A. Metcalf.

1868. Broad loom shuttle-motion. J. Lyall.

1869. Inside catch shuttle. J. H. Coburn.

There is quite a lapse between 1870 and 1890 in which no very important patents on plain looms were granted. In fact looms made before 1850 continued running for years in competition with those built long after, the more modern looms not showing any notable advantage, except perhaps in heavier construction and higher possible speed. It must be remembered that I am still referring to the plain, common loom, not in any way intending to disparage the remarkable advance in the range of fancy loom devices in that period, including the hair-cloth loom, pile fabric loom, tape loom, etc., etc., etc.

STOCK VALUATION.

Recently noting a broker's list of Southern cotton mill stocks for sale, with prices bid and asked, the writer as a matter of curiosity, separated out the mills which had bought Northrop looms, and figured a comparison in the value of the stock as quoted. The price **asked** was taken in each case, the price bid being added in only where there was no asking price. The total result showed that 28 mills **without** Northrop looms, averaged a stock value, as thus figured, of $102 a share. The 37 other mills, **having** Northrop looms, averaged on the same basis, $114 per share.

This is a highly gratifying condition of things, and is even more striking when remembering that the Northrop loom mills include a greater proportionate number of new mills just starting, which have not yet had a chance to accumulate a surplus.

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We are sending out a pamphlet giving the list of purchasers of Northrop looms to January 1, 1904. It is too long to be printed as formerly in "COTTON CHAT" form. The totals show 93,830 complete Northrop looms sold, 2,124 additional filling-changers applied and 18,365 additional warp-stop motions. This means that there are to-day more than 100,000 looms in actual operation in this country alone, using our improvements. In 1903 we **shipped** 18,712 complete Northrop looms and applied 109 additional filling-changers and 3369 additional warp-stop motions. We believe we are the only machine-builders in our line who give the absolute detail of sales. We know of no better argument.

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An overseer recently called attention to a Northrop loom weaver, saying:—"You see that woman! She has gained forty pounds since going on those looms and her last winter's clothes won't fit her." Investigation showed that she formerly ran four common looms (No. 4s filling, 17 warp) and now ran twelve Northrop on the same goods. She was making better wages with less work, though ascribing some of the betterment in health to relief from sucking filling.

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